Valeology: International Journal of Medical Anthropology and Bioethics

(ISSN 2995-4924) VOLUME 02 ISSUE 09, 2024

ASSESS THE QUALITY OF LIFE OF PSORIASIS PATIENTS AND IDENTIFY RISK FACTORS

Dr. Rufaida Mahmood Muhi

M.B.Ch.B., H.D.D.V. \ (Dermatology and Venereology), Iraqi Ministry of Health, Al-Karkh Health Directorate, Abu Graib General Hospital, Baghdad, Iraq

Dr. Aulfet aied shnien

M.B.Ch.B., H.D.D.V. \ (Dermatology and Venereology), Iraqi Ministry of Health, Karbala Health Directorate, Imam Hassan Teaching Hospital, Karbala, Iraq

Dr. Qutaiba Jawad Kadhim

M.B.Ch.B., F.A.B.H.S.D.V. \ (Dermatology and Venereology), Iraqi Ministry of Health, Karbala Health Directorate, Al-Hindia Teaching Hospital, Karbala, Iraq

Abbas AbdulWahhab Jumaah Al-Salihi

M.Sc.\(Sciences in Genetic Engineering and Biotechnology \ Molecular Biology), Department of Applied Embryology, High Institute for Infertility Diagnosis and Assisted Reproductive Technologies, Nahrain University, Kadhimiya, Baghdad, Iraq

Dr. Ali Qais Abdulkafi

M.B.Ch.B., D.C.H. \ (Pediatrics), Iraqi Ministry of Health, Kirkuk Health Directorate, Kirkuk Teaching Hospital, Kirkuk, Iraq

Abstract:

Background: Patients are severely affected by Psoriasis, which affects their quality of life. Therefore, this study is focused on determining the life quality of patients who are having Psoriasis and the risk factors involved.

Patients and methods: Between January 2023 and October 2024, data were collected from different hospitals in Iraq on a cohort of 74 individuals diagnosed with psoriasis aged between 30 and 60 years. One of the main tools for measuring life quality among individuals with psoriasis is the Quality-of-life scale questionnaire, which assesses the physical, psychological, social, and emotional aspects associated with this condition. Additionally, in this study, we pinpointed risk factors that affect patients' long-term prognosis.

Results: The clinical outcomes revealed that 25 cases were observed in males and 49 cases in females. A total of 37.84% of cases were attributed to obesity, while the smoking rate was 47.30%. Itching was identified as the most prevalent symptom, affecting 97.30% of patients. The head and neck regions were the most common location of psoriasis, with 46 cases. In terms of quality of life (QOL) assessment, the physical aspect was found to have a mean score of 11.03 ± 5.81, the psychological aspect a mean score of 6.20 ± 3.14, and the social and emotional aspects a mean score of 4.45 ± 2.75. The risk factors identified as affecting the general health of patients were age, location of psoriasis, severity of illness, and duration of disease.

Conclusion: Psoriasis significantly reduces the quality of life among patients, as it affects both their physical and psychological well-being.

Keywords: *Psoriasis; Risk factors; Quality life Questionnaire; Duration of disease; and Disease severity*.

Introduction

1. Introduction

Psoriasis is a persistent and non-contagious inflammatory disease of the skin which results from inherited predisposition and also abnormal growth of the epidermis. It is expected that the disease will affect about 2 to 3 percent of the European total population (1,2). Various literature and medical examinations show how this disease has impacted those suffering from it. According to van de Kerkhof, psoriasis is considered as ‘a life-ruining illness’ since although it does not directly cause death, life becomes uncomfortable because of it (3 - 6).

Therefore, it affects the quality of life in similar ways as other chronic illnesses, even life-threatening ones like cancer, heart attack, diabetes, and hypertension. Psoriasis patients have a lot of challenges doing their day to meals presents like washing, dressing, sleeping, and even going to work. These issues arise from the physical impact of this disease on human bodies. Among these are pain, itchiness, and possible embarrassment due to the rapid peeling of dead cells in public, that makes clothes worn out quickly. (7-12)

The appearance of some people is considered dirty and infectious, which makes them feel they don’t belong to anyone at all. Such a notion breeds self-hatred and feelings of isolation (13). Psoriatics often have a poor self-image that translates into feelings of inferiority complex and worthlessness. This situation causes depression and hopelessness, among others consider ending their lives through suicide (14). In addition to this, remorseful psoriatics frequently become helpless (15).

The situation often brings forth anxieties regarding the reactions of family and friends, alongside apprehensions about the way one looks or feels. As a consequence, numerous patients are locked out of receiving social services thus leading to heightened solitude. To avert unkind and irritated looks, certain people withdraw from or outright refuse to attend social events. Besides this, psoriasis has an effect on relationships with other people (16,17)

It can be argued that only physical symptoms can deteriorate individuals' income sources, which additionally presupposes their recurrence in hospitalisation and finally lead to quitting the job (18). This indicates that ‘the disease that makes life unbearable’ has an invincible effect on an individual’s bodily wellness (19). Overall, it is subjective well-being that primarily determines individuals’ reactions toward such situations irrespective of the contextual background. The theoretical assumptive nature of this phenomenon is attributed to individuals’ conscious experiences and manifests in terms of cognitive gratification (20).

Moreover, the lack of a comparison between sick people and their healthy counterparts (21) is a major limitation. The idea behind health-related quality of life is more limited than that of the overall quality of life because it is focused on how diseases and treatments influence personal happiness. On the other hand, poor health does not always mean low quality of living. Some do find ways to adapt to their illnesses and continue chasing after what they want in life. (22,23)

2. Patients and methods

2.1. Patient data

In different hospitals in Iraq during the period from January 2023 to October 2024, we conducted a cross-sectional study on 74 psoriasis patients aged 30-60 years. Demographic and clinical data were collected, including age, gender, symptoms, comorbidities, duration of psoriasis, age of onset, and family history of psoriasis. We excluded data according to the following criteria: patients under 30 years or over 60 years, patients with serious diseases such as cancer, kidney disease, or others, patients who had undergone previous surgeries, children or adolescents, while patients with obesity, smokers, patients who had previously taken medications, and patients aged 30-60 years were included. Our study determined the severity of psoriasis in patients using the PASI scale, which evaluates the following criteria: redness, infiltration, scaling, and affected body surface area, where a score of less than or equal to 3 was considered mild psoriasis.

2.2. Diagnostic Criteria Patients

All patients underwent clinical examinations to diagnose skin problems, through which we determined the severity of the disease, the extent of the symptoms, and the degree of their impact. We determined the locations of psoriasis lesions (nails, hands, head, and neck) and the extent of the symptoms, which determined the severity of psoriasis, with PASI scores ranging from 0 to 72, with higher scores indicating more severe symptoms, as assessed by the criteria of redness, infiltration, scaling and affected body surface area.

2.3. Questionnaires for quality of life and risk factors

The PDI consists of 15 items that describe the functional limitations caused by the presence of the condition in daily life. The questions were based on events that occurred in the previous four weeks. The answers were recorded on a scale from zero to three, where 0 means “not at all” and three means “very much.” Thus, the scores ranged from a minimum of 0 to a maximum of 45. Higher scores are associated with lower levels of quality of life. Furthermore, the 15-item Psoriasis Life Stress Inventory (PLSI-15) was used to assess the daily stress levels experienced by individuals living with psoriasis. Also, skin problems are commonly diagnosed using the DLQI, a factor used by many of them. The maximum score is 30, and the minimum is 0; it indicates how poor the health-related quality of life is if it is high. Furthermore, a univariate analysis was performed, which recorded the extent to which risk factors affected the patients and the patient’s quality of life. The data and variables describing the outcomes and pathological analyses in the participants were designed in terms of mean (m) standard deviation by SPSS software version 22.0.

3. Results

Table 1: *Demographic and clinical factors of patients with psoriasis.*

Parameters		**Cases, 74**	**Percentage, %**
Age			
	30 – 40	17	22.97%
	41 – 50	27	36.49%
	51 – 60	30	40.54%
Sex			
	Male	25	33.78%
	Females	49	66.22%
BMI, Kg/m2			
	Underweight	10	13.51%

	Normal weight	17	22.97%
	Overweight	19	25.68%
	Obesity	28	37.84%
No. of comorbidities			
	Yes	48	64.86%
	No	26	35.14%
	I	42	56.76%
	II	34	45.95%
	III	30	40.54%
	IV	25	33.78%
	IVV	15	20.27%
Smoking			
	Yes	35	47.30%
	No	39	52.70%
Prior medication use			
	Yes	62	83.78%
	No	12	16.22%
Education status			
	Primary school	17	22.97%
	Secondary school	37	50.0%
	University/ Post – graduated	20	27.03%
Marital status			
	Single/Unmarried	8	10.81%
	Married	45	60.81%
	Divorced	14	18.92%
	Widowed	7	9.46%
Monthly income, $			
	< 500	33	44.59%
	500 – 800	24	32.43%
	> 800	17	22.97%
❖ *Types of comorbidities:* ***Hypertension, Diabetes, Asthma, Thyroid gland, and Osteoporosis.***			

Table 2: *Diagnostic data of patients with psoriasis.*

	Parameters	***Cases, 74***	***%***
Symptoms			
	Red patches	66	89.19%
	Dry	36	48.65%
	Cracked skin that may bleed	29	39.19%
	Itching	72	97.30%
	Thickened, pitted, or ridged nails	16	21.62%
	Swollen and stiff joints.	9	12.16%

	Disturbed sleep	68	91.89%
Family history of illness			
	Yes	16	21.62%
	No	58	78.38%
Anxiety and depression effect			
	Yes	64	86.49%
	No	10	13.51%
Locations of psoriasis			
	Nails	10	13.51%
	Hands	18	24.32%
	Head and neck	46	62.16%
Type of the disease			
	Chronic plaque psoriasis	64	86.49%
	Flexural psoriasis	1	1.35%
	Guttate psoriasis	3	4.05%
	Palmo-plantar psoriasis	1	1.35%
	Pustular psoriasis	2	2.70%
	Erythrodermic psoriasis	3	4.05%
Treatment effectiveness			
	Yes	18	24.32%
	No	56	75.68%
Psoriasis area and severity index, PASI			
	Mild < 12	13	17.57%
	Moderate 12–25	21	28.38%
	Severe > 25	40	54.05%
Duration of disease, years, (mean ± SD)	5.48 ± 3.68		
Scores related to Psoriasis impact			
Psoriasis area and severity index (PASI)	*25.83 ± 4.75*		
Psoriasis disability index (PDI)	*22.53 ± 9.16*		
Psoriasis Life Stress Inventory (PLSI)	*17.92 ± 11.55*		

Table 3: *Assessment of quality – of life at patients with Psoriasis.*

QOL Items	**Mean**	**SD**
Physical aspect	11.03	5.81
Psychological aspect	6.20	3.14
Social and emotional aspects	4.45	2.75
Daily activities	5.84	3.67
Personal relationship	3.84	1.22
Sexual function	3.51	1.63
Treatment-related effects	4.53	1.26

Table 4: *Determining all quality–life evaluations at patients with Psoriasis in terms of DLQI scale and BIPQ scale.*

Scales	***Parameters***	***No. of cases, 74***	***%***
DLQI score			
	No effect (0–1)	6	8.11%
	Small effect (2–5)	16	21.62%
	Moderate effect (6–10)	24	32.43%
	Very large effect (11–20)	18	24.32%
	Extremely large effect (21–30)	10	13.51%
BIPQ *scale*			
	Consequences score	12.21 ± 3.58	
	Timeline score	10.44 ± 4.77	
	Personal control score	6.85 ± 1.63	
	Treatment control score	2.22 ± 1.76	
	Identity score	9.24 ± 2.89	
	Illness concern	8.28 ± 2.82	
	Emotional representation score	7.30 ± 2.10	
	Coherence score	2.95 ± 1.05	

Table 5: *A univariate analysis of the risk factors affecting patients with psoriasis.*

Risk factors	***Univariate analysis***	
	OR	*CI 95%*
Age of patients	*2.54*	*0.86 – 4.36*
Family history of illness	*1.57*	*0.27 – 2.79*
Locations of psoriasis	*3.13*	*2.46 – 4.88*
Anxiety and depression effect	*2.91*	*1.71 – 4.48*
Type of the disease	*3.75*	*1.11 – 4.0*
Severity of illness	*2.76*	*1.40 – 3.95*
Duration of disease	*1.02*	*0.48 – 1.84*
Comorbidities	*1.55*	*0.97 – 2.69*

4. Discussion

As per the recent research findings, there are health limitations in the quality of life among patients of psoriasis. The extent to which psoriasis affects life expectancy is equal or, in some cases, worse compared to other chronic ailments like grape heart disease as well as diabetes (24-27). Additionally, psoriasis and its management can interfere with the physical, psychological, and social functioning of a patient, resulting into a low level of overall health. This paper, therefore, presents evidence from studies reviewed that indicates how substantially majorly sufferers live poorly due to a very low grading correlation between the severity of their illness and their own perception regarding quality of life (28).

A dearth of literature relates the clinical severity with the subjective well-being of individuals suffering from psoriasis. Many studies have suggested that poor quality of life is associated with severe cases of psoriasis. On the contrary, a few studies indicated that there was no correlation between assessed disease severity and patients' well-being. It was found in this study that moderate and severe psoriasis patients experienced more difficulties in bathing (having to go for a bath more often than usual) and dressing (having to put on special clothes or change clothes repeatedly) than those having mild disease while there were no group differences in terms of home management (problems with house or garden work) and haircare (29,30).

The severity of the disease was found to be significantly correlated with specific behavioural patterns, including patterns of absence from work and difficulties in securing employment. In contrast, no significant correlation was observed between disease severity and personal relationships, sexual function, or treatment-related issues. Nevertheless, our findings suggest that the severity of psoriasis is associated with a reduction in quality of life for those affected. It was, therefore, established that patients who are more educated consistently exhibit superior quality of life in comparison to those who do not possess degrees but are afflicted by the same disease (psoriasis). Education fosters an individual's understanding of cognitive processes and emotions, thereby empowering them. Consequently, in terms of enhanced management of their conditions, education would thereby facilitate patients' individual capacity development efforts. Our findings are in accordance with those of the American study (31), which determined that a family history of psoriasis does not significantly impact quality of life.

Also, not a significant relationship was found among age, sex, clinical type, or length of illness and an individual’s specific life quality. Therefore, the type of anxiety associated with anticipating the reactions of others to one’s psoriasis is what made living for these patients much harder than anything else that was studied. Those who fell into the category of being stress-reactive tended to rate themselves as having more disability in the whole PDI than any PLSI subscale score.

The findings presented here support those of previous studies. Some research (32-34) has indicated that patients with psoriasis who exhibited high-stress reactivity exhibited greater physical limitations in all activities of daily living, with the exception of personal relationships. It is incumbent upon practising physicians to take these results into account, given the well-established link between stress and the worsening of psoriasis. A comparison of the PASI scores of the high-stress and low-stress reactors revealed no statistically significant difference between the two groups. This observation is in accordance with the findings of studies conducted in Germany (35) and Spain (36), which demonstrated that the conventional dermatological criteria employed to assess psoriasis severity did not differentiate between the two groups of reactors. Nevertheless, other studies yielded contrasting results.

5. Conclusion

Psoriasis affects patients in a noticeable way, leading to a diminished quality of living and generally affecting the physical, psychological, and social aspects of their health. In this study, it’s shown that the severity of psoriasis, the site of psoriasis lesions, efficacy of treatment and co-morbidities are important risk factors affecting long-term quality of life.

6. References

1. Ali FM, Cueva AC, Vyas J, Atwan AA, Salek MS, Finlay AY, et al. (2017). A systematic review of the use of quality-of-life Instruments in randomized controlled trials for psoriasis. Br J Dermatol 176 (3): 577–593. DOI: 10.1111/bjd.14788.
2. Broadbent E, Petrie KJ, Main J, Weinman J (2006). The brief illness perception questionnaire. J Psychosom Res 60 (6): 631–637. DOI: 10.1016/j.jpsychores.2005.10.020.
3. Broadbent E, Wilkes C, Koschwanez H, Weinman J, Norton S, Petrie KJ (2015). A systematic review and meta-analysis of the Brief Illness Perception Questionnaire. Psychol Health 30 (11): 1361–1385. DOI 10.1080/08870446.2015.1070851.
4. Calara PS, Norlin JM, Althin R, Carlsson KS, Schmitt-Egenolf M (2016). Health care Provider Type and Switch to Biologics in Psoriasis: Evidence from Real-World Practice. Bio Drugs 30 (2): 145–151. DOI: 10.1007/s40259-016-0163-8.

5. Coates LC, Helliwell PS (2017). Psoriatic arthritis: state of the art review. Clin Med (Lond) 17 (1): 65–70. DOI: 10.7861/ clinmedicine.17-1-65.
6. Costa ECV, Vale S, Sobral M, Graça Pereira M (2016). Illness perceptions are the main predictors of depression and anxiety symptoms in patients with chronic pain. Psychol Health Med 21 (4): 483–495. DOI: 10.1080/13548506.2015.1109673.
7. Daudén E, Herrera E, Puig L, Sánchez-Carazo JL, Toribio J, Perulero N (2013). Impact of active and stable psoriasis on health-related quality of life: The PSO-LIFE study. Actas Dermosifiliogr 104 (8): 685–693. DOI: 10.1016/j. adengl.2013.02.008.
8. Dimitrov D, Matusiak Ł, Szepietowski JC (2019). Stigmatization in Arabic psoriatic patients in the United Arab Emirates – a cross-sectional study. Postepy Dermatol Alergol36 (4): 425–430. DOI: 10.5114/ada.2018.80271.
9. Ferreira BI, Abreu JL, Reis JP, Figueiredo AM (2016). Psoriasis and Associated Psychiatric Disorders. A systematic Review on Etiopathogenesis and Clinical Correlation. J Clin Aesthet Dermatol 9 (6): 36–43.
10. Finlay AY, Khan GK (1994). Dermatology Life Quality Index (DLQI) – A simple, practical measure for routine clinical use. Clin Exp Dermatol 19 (3): 210–216. DOI: 10.1111/j.1365-2230.1994. tb01167. x.
11. Fleming P, Bai JW, Pratt M, Sibbald C, Lynde C, Gulliver WP (2017). The prevalence of anxiety in patients with psoriasis: a systematic review of observational studies and clinical trials. J Eur Acad Dermatol Venereol 31 (5): 798–807. DOI: 10.1111/ jdv.13891.
12. Fortune DG, Richards HL, Griffiths CE, Main CJ (2002). Psychological stress, distress and disability in patients with psoriasis: Consensus and variation in the contribution of illness perceptions, coping and alexithymia. Br J Clin Psychol 41 (Pt 2): 157–174. DOI: 10.1348/014466502163949.
13. Freire M, Rodríguez J, Möller I, Valcárcel A, Tornero C, Díaz G, et al. (2011). Prevalence of symptoms of anxiety and depression in patients with psoriatic arthritis attending rheumatology clinics. Reumatol Clin 7 (1): 20–26. DOI: 10.1016/j. reuma.2010.03.003.
14. Hagger MS, Orbell S (2003). A meta-analytic review of the common-sense model of illness representations. Psychol Health 18 (2): 141–184. DOI: 10.1080/0887044031000081321.
15. Higgins E (2017). Psoriasis. Medicine 45 (6): 368–378. DOI: 10.1016/j.mpmed.2017.03.010.
16. Kaaz K, Szepietowski JC, Matusiak L (2019). Sleep quality among adult patients with chronic dermatoses. Adv Dermatol Allergol 36 (6): 659–666. DOI: 10.5114/ada.2019.84007.
17. Kotsis K, Voulgari PV, Tsifetaki N, Drosos AA, Carvalho AF, Hyphantis T (2014). Illness perceptions and psychological distress associated with physical health-related quality of life in primary Sjögren’s syndrome compared to systemic lupus erythematosus and rheumatoid arthritis. Rheumatol Int 34 (12): 1671–1681. DOI: 10.1007/s00296-014-3008-0.
18. Kotsis K, Voulgari PV, Tsifetaki N, Machado MO, Calvalho AF, Creed F, et al. (2012). Anxiety and depressive symptoms and illness perceptions in psoriatic arthritis and associations with physical health-related quality of life. Arthritis Care Res (Hoboken) 64 (10): 1593–1601. DOI: 10.1002/acr.21725.
19. Łakuta P, Przybyla-Basista H (2017). Toward a better understanding of social anxiety and depression in psoriasis patients: The role of determinants, mediators, and moderators. J Psychosom Res. 94: 32–38. DOI: 10.1016/j. jpsychores.2017.01.007.

20. Łakuta P, Marcinkiewicz K, Bergler-Czop B, BrzezińskaWcisło L, Słomian A (2018). Associations between site of skin lesions and depression, social anxiety, body-related emotions, and feelings of stigmatization in psoriasis patients. Postepy Dermatol Alergol 35 (1): 60–66. DOI: 10.5114/pdia.2016. 62287.
21. Lamb RC, Matcham F, Turner MA, Rayner L, Simpson A, Hotopf M, et al. (2017). Screening for anxiety and depression in people with psoriasis: a cross-sectional study in a tertiary referral setting. Br J Dermatol 176 (4): 1028–1034. DOI: 10.1111/bjd.14833.
22. Leventhal H, Diefenbach M, Leventhal EA (1992). Illness cognition: Using common sense to understand treatment adherence and affect cognition interactions. Cognitive Therapy and Research 16 (2): 143–163. DOI: 10.1007/BF01173486.
23. Mattei PL, Corey KC, Kimball AB (2014). Psoriasis Area Severity Index (PASI) and the Dermatology Life Quality Index (DLQI): the correlation between disease severity and psychological burden in patients treated with biological therapies. J Eur Acad Dermatol Venereol 28 (3): 333–337. DOI: 10.1111/jdv.12106.
24. Menting SP, Sitaram AS, Bonnerjee-van der Stok HM, de Rie MA, Hooft L, Spuls PI (2014). Drug survival is not significantly different between biologics in patients with Psoriasis vulgaris: a single-center database analysis. Br J Dermatol 171 (4): 875–883. DOI: 10.1111/bjd.13001.
25. Norris D, Photiou L, Tacey M, Dolianitis C, Varigos G, Foley P, et al. (2017). Biologics and dermatology life quality index (DLQI) in the Australasian psoriasis population. J Dermatolog Treat 28 (8): 731–736. DOI: 10.1080/09546634.2017.1329501.
26. Obradors M, Blanch C, Comellas M, Figueras M, Lizan L (2016). Health-related quality of life in patients with psoriasis: a systematic review of the European literature. Qual Life Res 25 (11): 2739–2754. DOI: 10.1007/s11136-016-1321-7.
27. Parisi R, Symmons DP, Griffiths CE, Ashcroft DM (2013). Global Epidemiology of Psoriasis: A Systematic Review of Incidence and Prevalence. J Invest Dermatol 133 (2): 377–385. DOI: 10.1038/jid.2012.339.
28. Petraškiene R, Valiukevičiene S, Macijauskiene J (2016). Associations of the quality of life and psychoemotional state with sociodemographic factors in patients with psoriasis. Medicine (Kaunas) 52 (4): 238–243. DOI: 10.1016/j. medici.2016.07.001.
29. Puig L, Thom H, Mollon P, Tian H, Ramakrishma GS (2017). Clear or almost clear skin improves the quality of life in patients with moderate-to-severe psoriasis: a systematic review and meta-analysis. J Eur Acad Dermatol Venereol 31 (2): 213–220. DOI: 10.1111/jdv.14007.
30. Reich K, Griffiths CE (2008). The relationship between quality of life and skin clearance in moderate-to-severe psoriasis: lessons learnt from clinical trials with infliximab. Arch Dermatol Res 300 (10): 537–544. DOI: 10.1007/s00403-008-0885-7.
31. Richards HL, Fortune DG, Griffiths CE, Main CJ (2001). The contribution of perceptions of stigmatisation to disability in patients with psoriasis. J Psychosom Res 50 (1): 11–15. DOI: 10.1016/s0022-3999 (00)00210-5.
32. Salemi S, Ghasemi A, Arefi M (2016). The relationship between illness perception, depression, and quality of life in patients with psoriasis who were referred to Haj Daie dermatology clinic in Kermanshah. Der Pharmacia Lettre 8 (3): 85–89.
33. Spitzer RL, Kroenke K, Williams JB, Löwe B (2006). Brief Measure for Assessing Generalized Anxiety Disorder. The GAD-7. Arch Intern Med 166 (10):1092–1097. DOI: 10.1001/ archinte.166.10.1092.

34. Takahashi H, Iinuma S, Tsuji H, Honma M, Iizuka H (2014). Biologics are more potent than other treatment modalities for the improvement of quality of life in psoriasis patients. J Dermatol 41 (8): 686–689. DOI: 10.1111/1346-8138.12544.
35. Wahl AK, Robinson HS, Langeland E, Larsen MH, Krogstad AL, Moum T (2014). Clinical characteristics associated with illness perception in psoriasis. Acta Derm Venereol 94 (3): 271–275. DOI: 10.2340/00015555-1673.
36. Zhang M, Hong L, Zhang T, Lin Y, Zheng S, Zhou X, et al. (2016). Illness perceptions and stress: mediators between disease severity and psychological well-being and quality of life among patients with Crohn's disease. Patient Prefer Adherence 10: 2387–2396. DOI: 10.2147/PPA.S118413.